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10/534,912	09/21/2005	Seiji Nishiyama	061352-0098	6729

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EXAMINER	
MA, CALVIN	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,912	NISHIYAMA ET AL.	
	Examiner	Art Unit	
	CALVIN C. MA	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 May 2009* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been received.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9, 11-12 and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Gordon II et al. (USP 6184856)

As to claim 1, Gordon II discloses a display device (26) comprising a pair of opposite substrates (2, 4), a group of electrostatically chargeable colored particles (12a) present between the pair of substrates, a transparent first electrode (20), and a second electrode (8), wherein the group of colored particles is capable of traveling in a manner to or not to shut off light incident on or passing through the first electrode in accordance with voltage applied across the first and second electrodes for displaying an image (i.e. the electrophoretic particle 12a are controllable by electrical field induced by the

electrode 8 and 20 travel from the proper positions) (see Fig. 1a, 1b, Col. 10, Lines 13-24).

As to claim 17, Gordon II teaches a method of driving a display device (26) including a pair of opposite substrates (2, 4), a group of electrostatically chargeable colored particles (12a) present between the pair of substrates, a transparent first electrode (20), and a second electrode (8), the method comprising applying voltage across the first and second electrodes to cause the group of colored particles to travel in a manner to or not to shut off light incident on or passing through the first electrode in accordance with the applied voltage for displaying an image (i.e. the electrophoretic particle 12a are controllable by electrical field induced by the electrode 8 and 20 travel from the proper positions) (see Fig. 1a, 1b, Col. 10, Lines 13-24).

As to claim 2, Gordon II teaches the display device according to claim 1, which has a light source (6) for emitting the light (see Fig. 1a, 1b, Col. 6, Lines 53-64).

As to claim 3, Gordon II teaches the display device according to claim 1, wherein the group of colored particles is capable of traveling so as to be displaced in a plan view in a manner to or not to shut off the light (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 4, Gordon II teaches the display device according to claim 2, which has a color filter (30, 32, 34) operative to permit light from the light source (6) to pass

therethrough for color display (i.e. the color filter 30, 32, 34 control color display) (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 5, Gordon II teaches the display device according to claim 4, wherein the color filter (30, 32, 34) is disposed on a surface of at least one (2) of the pair of substrate(i.e. the color filter 30, 32, 34 control color display on the front substrate 2) (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 6, Gordon II teaches the display device according to claim 4, wherein the color filter is disposed on a surface of the first electrode(i.e. the color filter 30, 32, 34 control color display on the front substrate 2) (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 7, Gordon II teaches the display device according to claim 4, wherein the color filter is disposed on a light exit surface of the light source(i.e. the color filter 30, 32, 34 control color display on the front substrate 2) (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 8, Gordon II teaches the display device according to claim 2, wherein the light source is configured to emit any one of red light, green light and blue light on a time-sharing basis(i.e. the color filter 30, 32, 34 control color display on the front substrate 2 and according to the electro-dynamic state of the molecule 10a to create color in a controlled basis) (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 9, Gordon II teaches the display device according to claim 2, wherein the light source (6) is configured to emit light only for color display (i.e. the light source 6 create the light for the color displaying cells on the display system 26 electro-dynamic state of the molecule 10a to create color in a controlled basis) (see Fig. 1a, 1b, Col. 6, Lines 35-64).

As to claim 11, Gordon II teaches the display device according to claim 1, which has a reflective plate (20) for reflecting light which is operative to reflect incident extraneous light for displaying white (i.e. the counter electrode would be able to reflect a portion of incidental light and when compounded with the RGB filter create a white light back out of the display, this is because all transmissive material will necessarily reflect some amount of light) (see Fig. 1a, Col. 6, Lines 35-65).

As to claim 12, Gordon II teaches the display device according to claim 11, wherein the reflective plate has a light scattering property (i.e. the electrode 20 has the effect of transmitting some light and reflecting other portion which scatter the light incident with respect to the electrode 20) (see Fig. 1a, 1b, Col. 6, Lines 35-65).

As to claim 18, Gordon II teaches the method according to claim 17, wherein the display device has a light source for emitting the light, the light source being configured to emit any one of red light, green light and blue light on a time-sharing basis (i.e. the

electronic control of the particle in the display result in time sharing of the three different pixel to yield the necessary color selection for the color display to function) (see Fig. 1a, Col. 6, Lines 1-65).

4. Claims 1-9, 11-12, 17-26, 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Choi (USP 6621541).

As to claim 1, Choi discloses a display device (200) comprising a pair of opposite substrates (i.e. 56 and all of the layer of material above it, 52), a group of electrostatically chargeable colored particles (60) present between the pair of substrates, a transparent (i.e. the 54 and 50 electrode are said to be ITO and is transparent) first electrode (54), and a second electrode (50), wherein the group of colored particles is capable of traveling in a manner to or not to shut off light incident on or passing through the first electrode in accordance with voltage applied across the first and second electrodes for displaying an image (i.e. the electrophoretic particle 60 are controllable by electrical field induced by the electrode 54 and 50 travel from the proper positions) (see Fig. 7a, Col. 5, Lines 27-64).

As to claim 17, Choi teaches a method of driving a display device (200) including a pair of opposite substrates (i.e. 56 and all of the layer of material above it, 52), a group of electrostatically chargeable colored particles (60) present between the pair of

substrates, a transparent first electrode (54), and a second electrode (50), the method comprising applying voltage across the first and second electrodes to cause the group of colored particles to travel in a manner to or not to shut off light incident on or passing through the first electrode in accordance with the applied voltage for displaying an image (i.e. the electrophoretic particle 60 are controllable by electrical field induced by the electrode 54 and 50 travel from the proper positions) (see Fig. 7a, Col. 5, Lines 27-64).

As to claim 2, Choi teaches the display device according to claim 1, which has a light source (70) for emitting the light (see Fig. 7a, Col. 5, Line 51).

As to claim 3, Choi teaches the display device according to claim 1, wherein the group of colored particles (60) is capable of traveling so as to be displaced in a plan view in a manner to or not to shut off the light (i.e. the electrophoretic particle can be driven to the state of figure 6 where the light is shut off and to figure 7a where the light is allow to pass through) (see Fig. 6, 7a, Col. 5, Lines 35-64).

As to claim 4, Choi teaches the display device according to claim 2, which has a color filter (404) operative to permit light from the light source (70) to pass therethrough for color display (i.e. the color filter 404 controls the over all color display) (see Fig. 5, 6, Col. 5, Lines 1-64).

As to claims 5, 6 and 7, Choi teaches the display device according to claim 4, wherein the color filter (404) is disposed on a surface of at least one (i.e. the top substrate where light exits the display structure includes 56 and all of the layer above it which also include the color filter portion 404) of the pair of substrate (see Fig. 5, 6, Col. 5, Lines 5-64).

As to claim 8, Choi teaches the display device according to claim 2, wherein the light source is configured to emit any one of red light, green light and blue light on a time-sharing basis(i.e. the color filter 404 control color display on the front substrate 2 and according to the electro-dynamic state of the molecule 10a to create color in a controlled basis where each of the individual pixel depending on the assigned color filter and electronic driving sequence display red, green and blue light in a time-sharing basis) (see Fig. 5,6, Col. 5, Lines 5-64).

As to claim 9, Choi teaches the display device according to claim 2, wherein the light source (70) is configured to emit light only for color display (i.e. the light source 70 when combined with the detailed structure of the display emit for the color display through the color filter element 404) (see Fig. 5-6, Col. 5, Lines 5-64).

As to claims 11-12, Choi teaches the display device according to claim 1, which has a reflective plate (50) for reflecting light which is operative to reflect incident extraneous light for displaying white (i.e. the reflective electrode 50 reflect a portion of

incidental light which would be Gaussian is nature and resulting in white light that is scattered) (see Fig. 5, Col. 6, Lines 5-65).

As to claim 18, Choi teaches the method according to claim 17, wherein the display device has a light source for emitting the light, the light source being configured to emit any one of red light, green light and blue light on a time-sharing basis (i.e. the electronic control of the particle in the display result in time sharing of the three different pixel to yield the necessary color selection for the color display to function) (see Fig. 1a, Col. 6, Lines 1-65).

As to claims 19 and 33, Choi teaches the display device, having a further comprising a group of transparent particles (i.e. the transparent fluid particle the electrophoretic particle 60 reside in) present together with the group of colored particles between the pair of substrates, the group of transparent particles being electrostatically chargeable to have a polarity opposite to that of the colored particles (i.e. the electrophoretic particles 60 respond differently to electronic stimulation and therefore have opposite charge respectively compared to the surrounding suspension particles) (see Fig. 6, Col. 5, Lines 1-30), wherein the group of colored particles and the group of transparent particles are capable of traveling between the first and second electrodes so as to transpose each other in a manner to or not to shut off light incident on or passing through the first electrode in accordance with voltage applied across the first

and second electrodes for displaying an image (i.e. the two groups of particles function together so that the light are adequately controlled) (see Fig. 5-6, Col. 5, Lines 1-30).

As to claim 20, Choi teaches the display device according to claim 19, which has a light source (70) for emitting the light (see Fig. 7a, Col. 5, Lines 33-64).

As to claim 21, Choi teaches the display device according to claim 19, wherein the group of colored particles and the group of transparent particles are capable of traveling so as to be displaced in a plan view in a manner to or not to shut off the light (i.e. the two groups of particles function together so that the light are adequately controlled) (see Fig. 5-6, Col. 5, Lines 1-30).

As to claim 22, Choi teaches the display device according to claim 19, wherein when the group of transparent particles (i.e. the transparent liquid medium which is composed of transparent particles) occupies substantially an entire area of a pixel in a plan view (see Fig. 6), a reflective member (50) located behind the group of transparent particles reflects extraneous light to display white (i.e. reflective electrode would be able to reflect a portion of incidental light passing through the top layer which scatters the light and when compounded with the RGB filter create a white light back out of the display yielding white light that is being recycled) (see Fig. 5-6, Col. 5, Lines 35-65).

As to claim 23, Choi teaches the display device according to claim 19, which has a color filter operative to permit the light to pass therethrough for color display (i.e. the color filter 404 controls the over all color display) (see Fig. 5, 6, Col. 5, Lines 1-64).

As to claim 24, Choi teaches the display device according to claim 20, wherein when the group of transparent particles occupies substantially an entire area of a pixel in a plan view while occupying a major plane of the pixel, a reflective plate located behind the light source or a scattering plate located in front of the light source reflects extraneous light to display white(i.e. the reflective surface 50 would be able to reflect a portion of incidental scattered light passing through the liquid crystal layer and when compounded with the RGB filter create a white light which is recycled by the reflective surface) (see Fig. 5-7a, Col. 5, Lines 23-65).

As to claim 25, Choi teaches the display device according to claim 20, wherein the light source is configured to emit any one of red light, green light and blue light on a time-sharing basis (i.e. light source 70 when couple with the display system would be configured to yield any one of the red, green, or blue light according to the proper pixel control) (see Fig. 5, Col. 5, Lines 1-25).

As to claim 26, Choi teaches the display device according to claim 20, wherein the light source is configured to emit light only for color display (i.e. light source 70 when

couple with the display system would be configured to yield any one of the red, green, or blue light according to the proper pixel control) (see Fig. 5, Col. 5, Lines 1-25).

As to claim 34, Choi teaches the method according to claim 33, wherein the light source is configured to emit any one of red light, green light and blue light on a time-sharing basis (i.e. light source 70 when couple with the display system would be configured to yield any one of the red, green, or blue light according to the proper pixel control) (see Fig. 5, Col. 5, Lines 1-25).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 10 and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Otakawa et al (US Pub: 2002/0185788).

As to claims 10 and 27, Choi teaches the display device according to claim 9 and 19, but does not explicitly teach wherein at least one of the pair of substrates comprises a resin film. Otakawa teaches teach wherein at least one of the pair of substrates comprises a resin film (i.e. the transparent resin substrate is used to create display device) (see Fig. 1, 2, [0127]).

Therefore it would have been obvious for one of obvious for one of ordinary skill in the art to have used the resin substrate structure of Otakawa to manufacture the display device of Choi in order to achieve a realizable process of manufacturing a display substrate having robust form preventing damage (see Otakawa [0048-0054]).

7. Claims 13-15 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Masuda et al. (USP 6822783).

As to claim 13, Choi teaches the display device according to claim 1, wherein: the pair of substrates are both transparent (see Fig. 5-6, Col. 5, Lines 35-65). However Choi does not explicitly teach one of the substrates has an inwardly oriented surface formed with a projecting-depressed member defining a depression and a pair of projections on opposite sides of the depression; and the first electrode is formed on a bottom portion of the depression, while the second electrode formed on top portions of the pair of projections. Masuda teaches one of the substrates has an inwardly oriented surface formed with a projecting-depressed member defining a depression and a pair of projections on opposite sides of the depression (i.e. the substrate because shaped with a depression) (see Fig. 9); and the first electrode (5a) is formed on a bottom portion of the depression, while the second electrode (5b) formed on top portions of the pair of projections (i.e. the top of the depression has the dual 5b electrode on each side) (see Fig. 9, Col. 10, Lines 40-49).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the depression based triple electrode design of Masuda in the overall display system of Choi in order to solve the problem of high power consumption (see Masuda, Col. 4, Lines 30-40).

As to claim 14, Masuda and Choi teaches the display device according to claim 13, wherein: the projections and the pair of depressions define border portions therebetween, each of the border portions being shaped into a sloped surface; a surface extending from the sloped surface to the top portion of each of the projections is formed with a light reflective plate; and the second electrode is formed on the light reflective plate (see Masuda, Fig. 8, 9, Col. 10, Lines 20-50).

As to claim 15, Choi and Masuda teaches the display device according to claim 14, wherein the second electrode is formed on the reflective plate (i.e. the reflective electrode 50) with an insulator intervening therebetween (i.e. the second electrode 6a is situated under the first electrode with a layer in between which acts as an insulation) (see Masuda, Fig. 9, Col. 10 Lines 40-49).

As to claim 28, Choi and Masuda teaches the display device according to claim 19, wherein: the pair of substrates are both transparent; the first electrode in a film form, an insulating film and the second electrode in a film form and having an opening are positioned in this order between the pair of transparent substrates; and the group of

colored particles and the group of transparent particles are encapsulated in the opening of the second electrode (i.e. the top of the depression has the dual 5b electrode on each side) (see Masuda, Fig. 9, Col. 10, Lines 40-49).

As to claim 29, Choi teaches the display device according to claim 28, wherein the insulating film is a color filter (i.e. the color filter 404) (see Fig. 5, Col. 5, Lines 25-26).

As to claim 30, Choi teaches the display device according to claim 29, which has a light source for emitting the light which is located externally of the substrate positioned closer to the first electrode (i.e. the external sun light or other frontal light source is closer to first electrode when the display is operating in the reflective mode) (see Choi, Fig. 5).

8. Claims 16 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Gates (USP 6704133).

As to claim 16 and 32, Choi teaches the display device according to claim 1 and 19, but does not explicitly teach wherein the pair of substrates define therebetween a space in a gaseous phase. Gates teaches the pair of substrates define therebetween a space in a gaseous phase (i.e. the electrophoretic particles are in gaseous phase medium) (see Gates, Fig. 1, Col. 19, Lines 17-55).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have adapted a gaseous medium of Gates in the display system of Choi in order to allow greater design flexibility for display application by being able to realize properties and functionality required in a given product (see Gates, Col. 4, Lines 8-25).

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Albert (USP 6392786).

As to claim 31, Choi teaches the display device according to claim 19, but does not explicit teach the specific size of the different particles, Albert teaches wherein each of the transparent particles has a larger diameter than each of the colored particles (i.e. the particles of the electrophoretic molecules are clearly smaller the transparent particle 118) (see Albert, Fig. 1, Col. 7, Lines 1-35).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have utilized the proportion of the molecular size of Albert in the actual manufacturing of the display system of Choi in order to ensure a practical way of implementing the design of the electrophoretic display (see Albert, Col. 5, Lines 1-20)

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. or more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Calvin Ma/
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